The Manitoba Water Strategy

April 2003

Protecting & Managing our Future

Manitoba
Building for the Future

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Message from the Minister

Dear Manitobans:

I am pleased to present *Manitoba's Water Strategy* for the future. It is a holistic approach to protecting our water - from watershed to tap. Our goal is to support and maintain our ecosystems while meeting the water needs of all Manitobans.

This strategy is part of a public process to engage Manitobans in creating a new approach to safeguard, manage, and sustain the use of our precious water resources. With the release of the water strategy discussion paper by my predecessor, the Honourable Oscar Lathlin, we started a process of engaging Manitobans to determine sustainable goals and techniques for the management of water within our borders. We believe public input is critical to the development of a water strategy, and we also believe that we must move quickly to protect and manage our water for all Manitobans.

The Manitoba government already has many initiatives in place to protect our drinking water. Safe drinking water is critical to our safety and security, as is the protection of lives and property from floodwaters. Hence the need for an expanded Red River Floodway. By developing a broad and flexible water strategy to accommodate a variety of needs, we will be prepared for the future.

Public feedback at workshops has helped guide the water strategy development and ensure the province is on the right track. A steering committee with members from across Manitoba has championed this process, and provided critical stewardship and guidance. Public consultation will continue with renewed emphasis on Aboriginal and northern residents, to ensure we have heard from everyone. Manitoba's water strategy must reflect all Manitobans' views and we will work hard to ensure you have an opportunity to tell us what you think. The development of the strategy continues to be a dynamic and flexible process.

We are proposing a three-pronged approach of new legislation, improved financial foundations, and integrated water planning and management on a watershed basis. There will also be further consultation with Manitobans on the implementation of this approach. Through this water strategy we will demonstrate our commitment to sustainable water management in Manitoba.

Your partnership in this exercise is vital to our success. Thank you for your continued participation.

Sincerely,

Steve Ashton
Minister of Conservation

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Manitoba's Vision

An abundance of high quality water
to support and maintain our ecosystems
and provide for the present
and future needs of all Manitobans.

Manitoba's Mission

Manitoba has an abundance of lakes, rivers, streams, and groundwater. Water is key to the economic and physical health of Manitobans. Wise stewardship of this natural heritage is critical to the well being of Manitobans and to the protection of this legacy for future generations. Manitoba will be a leader in integrated water and land use planning and management on a watershed basis. We will continue to build capacity for Manitobans to conserve our valuable water resources in partnership with all levels of government, industry, interest groups, and individuals. A key determinant of this vision is the degree to which we protect and enhance all of our vital aquatic resources.
It is up to all of us.

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1. Introduction

Protecting our Water for the Future

The United Nations has declared 2003 as the Year of Fresh Water. This declaration comes at a time when quality fresh water is a scarce resource in many parts of the world. This year we are reminded of the importance of protecting fresh water supplies wherever they are found.

Manitoba is fortunate to be blessed with an abundance of fresh water, but we know that we cannot take this resource for granted. We must take action today to ensure that we have a good supply of quality fresh water for tomorrow. This includes protecting the quality of our drinking water, challenging water diversions beyond our borders and addressing changes in climate that will bring more frequent spring flooding and periods of summer drought. It also includes paying special attention to water bodies, such as Lake Winnipeg, that could be vulnerable to the effects of excess nutrients.

We are taking action:

* *The Drinking Water Safety Act* passed in 2002 is among the most comprehensive pieces of drinking water legislation in North America.
* Legislation to ban bulk water removal was passed in 2000 to protect both the quality and quantity of our water.
* Manitoba has challenged the Devils Lake and Garrison Diversion projects at the highest levels to prevent the inter-basin transfer of harmful organisms into the Hudson Bay drainage basin.
* Flood protection for both rural and urban Manitobans has been given top priority.
* Actions to protect Lake Winnipeg, including greater protection of riparian areas and tightened sewage and septic regulations have been announced.
* More resources have been added to address water quality and water management issues.

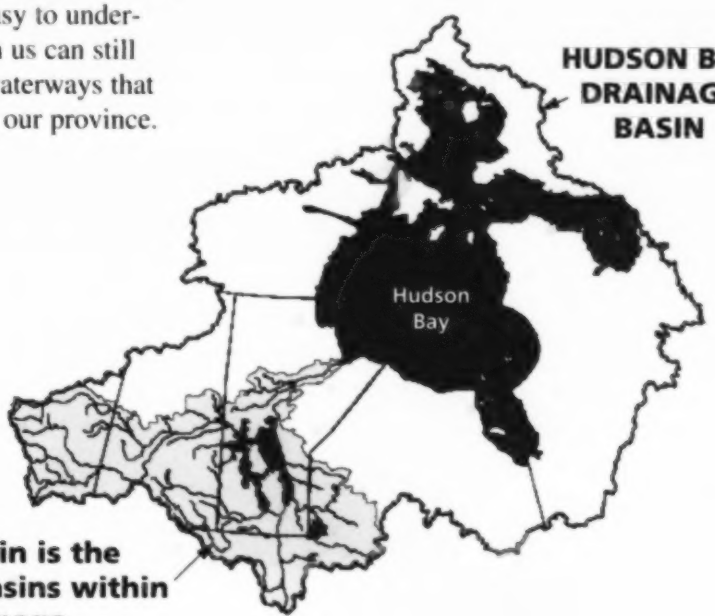
These are important steps in ensuring the sustainability of our water resources. However, the increasing complexity of water issues points to the need for a comprehensive strategy that is based on the protection of whole watersheds. For example, the wrong combination of soils, topography and nutrients in one area could affect water quality in another area. The identification of nutrient management zones, using scientific criteria, would assist provincial and municipal governments in making appropriate decisions to better protect ground and surface waters. This approach, together with other actions contained in this strategy, supports province wide watershed planning to protect our water today and for our future generations.

Manitoba...Land of 100,000 Lakes

Manitoba is fortunate to have an abundance of fresh water. The remains of the ancient waterways that once carved the Manitoba landscape continue to play an important role in shaping our province. From the prairie rivers in the south, to the icy waters of Hudson Bay, our water resources are as diverse as they are abundant.

Fully 13 per cent of Canada's fresh water enters into, and drains through, Manitoba into Hudson Bay. A significant amount of this water is received through our border with the United States. In total, water from a portion of three provinces, all three Canadian territories, and four U.S. states drains directly into Manitoba. As the drainage basin for much of Western Canada and a portion of the plains states, it is easy to understand how activities far away from us can still have a significant impact on the waterways that eventually flow into, and through, our province.

As Manitobans, we depend on this flow of water for almost every aspect of our lives. Whether it is hydro-electricity, fishing, industrial use or agriculture, billions of dollars are generated each year as a direct result of our vast supplies of fresh water. As individuals we depend on water for our household needs as well as for the aesthetic beauty and relaxation we derive from living or vacationing near our countless rivers and lakes. Clearly we all have a vested interest and a role to play in sustaining our water resources. Nowhere is this more evident than in the importance we place on our largest and most unique body of water, Lake Winnipeg.



The Nelson River Basin is the largest of 23 river basins within the Hudson Bay Drainage Basin

Lake Winnipeg... A Prairie Ocean

Lake Winnipeg is the world's 10th largest freshwater lake, covering almost 24,000 square kilometres in surface area. The lake plays an important role in the lives of many Manitobans and is an important symbol for the province. Not only does this enormous and exceptional body of water provide us with countless recreational and economic benefits, its beautiful beaches are also a feature attraction for visitors to our province.

This prairie ocean provides a livelihood for about 850 licensed commercial fishers and numerous anglers; it provides transportation links to remote and northern communities, and serves many other important functions. The primary function is to provide unique habitat for fish and other organisms.

Lake Winnipeg receives drainage from nearly 1,000,000 square kilometres extending to the Rocky Mountains in Alberta in the west, and includes large portions of North Dakota and Minnesota in the south, and northwestern Ontario in the east. Consequently, activities within both Manitoba and neighbouring jurisdictions can affect the health of Lake Winnipeg.

Recent studies conducted by Manitoba Conservation, as well as research carried out by other government agencies, and work done through the Lake Winnipeg Research Consortium (LWRC), have found that the lake is slowly changing. It is believed that excess nutrients from various sources throughout the basin are causing the lake to become enriched, allowing for more frequent growth of abundant algae, affecting fish habitat, recreation, other important water uses, and clogging commercial fishers' nets.

It is believed that changes observed in the lake due to the influx of excess nutrients are reversible. Although Lake Winnipeg commercial fishers continue to harvest record numbers of walleye and sauger, ignoring the problem of nutrient loading is not an option due to the importance of Lake Winnipeg to all of us. The Manitoba government has announced an action plan to begin to achieve the goal of reducing nutrients in the lake to pre-1970 levels. The plan includes enhanced riparian protection, better programs for soil testing, tightened regulations for sewage and septic systems and additional requirements for larger treatment systems. Clean Environment Commission hearings on Lake Winnipeg will be held and a new Lake Winnipeg Stewardship Board will work to implement actions to meet the pre-1970 goal. To be successful, this action plan will require significant effort from all of us and from our neighbours, but we are committed to ensuring the long-term health of this important and unique body of water.

Manitoba's Water - Working Together

It goes without saying that our water resources are vital to the future of all Manitobans. Therefore, any strategy dealing with water must include a co-operative approach that involves all citizens who depend on, as well as benefit from, our water resources.

For example, the opportunities from renewable hydroelectric power and a diverse agricultural sector are among the most significant benefits we derive from our dependable flow of water. Hydroelectricity is a reliably priced, clean form of energy that enables our provincial utility, Manitoba Hydro, to be a major player in provincial and international energy sectors. Manitoba is committed to the promotion of low-impact hydroelectricity, along with wind and geothermal power, as clean energy sources for the future, and as a means of achieving our climate change commitments under the Kyoto Accord. However, we know that things must be done differently now. By working co-operatively with First Nations communities, and through proper planning and a thorough environmental assessment process, new hydro developments in Manitoba will be low-impact, with little or no flooding. Northern communities will be partners in these new developments and residents will directly benefit from the construction, operation and power generation for the life of the project. By proceeding in a sustainable manner, we can ensure hydro-electric developments benefit all Manitobans.

Manitoba has committed to improving the relationship between Aboriginal peoples and other Manitobans based on principles of mutual recognition, respect, resource sharing and responsibility. The government recognizes the rights and interests of Aboriginal people established through treaties and the *Canada Constitution Act of 1982*. These principles will form the basis for the consultation process to be undertaken by the province in the further development and implementation of the water strategy.

Agricultural diversification and intensification, including value-added food processing, has made Manitoba a leader in food production throughout the world. At the same time new challenges such as a changing climate causing droughts as well as recent studies showing excess nutrients in our waterways mean we must look carefully at water management. Our goal must be to protect both our water resources and our highly valued agricultural sector. We must give producers the tools they need to successfully meet new challenges and enhance sustainable practices on the land.

Over time, the use of water has changed and will continue to change, as will the pressures placed upon the resource. An increasing population and accompanying development, increased industrial demands, technological changes, increased pollution, and climatic changes have all had an effect on the resource. Pressures will continually increase and change, therefore we must take a long-sighted and flexible approach to water management and ensure that we approach decision making in the context of the whole watershed.

Watershed planning requires both a comprehensive and co-operative approach to managing water issues and, as such, has already had a long history in Manitoba through our many Conservation Districts. Conservation Districts work at the local

level with all community members to revitalize waterways and manage water control structures. The growth of these districts from nine to 16 in just the past three years demonstrates the increasing commitment of Manitobans to sustainable watershed planning. We must build on that commitment - as governments, communities and individuals - to develop watershed plans across the province.

Step one is the development of province-wide benchmarks, through policies, guidelines and legislation, for sustainable water withdrawals, water retention, and treated effluent discharges that will ensure the integrity of watersheds ecosystem. Co-operative water management efforts, in partnership with all stakeholders, will be required to implement effective solutions dependent upon the uniqueness of each watershed. All of these mechanisms must reflect the principles and guidelines of sustainable development and be supported through legislation, providing an overall regulatory and management framework.

In light of emerging issues and challenges, Manitoba has held a series of public consultations and reviews to seek recommendations on land drainage, water use and allocation, ecosystem based planning (Consultation on Sustainable Development Implementation or COSDI), drinking water and livestock stewardship. Based on the recommendations from these reports a discussion document, *Water: A Proposed Strategic Plan for Manitoba,* was publicly reviewed by a steering committee and advisory committee drawn from many stakeholder groups in our province.

The ideas of Manitobans assembled from these various public reviews, form the foundation of this comprehensive strategic plan for managing water resources in Manitoba. To gain further input from Manitobans, there will be Aboriginal and northern residents consultations on this water strategy document. The information collected will be incorporated into the water strategy implementation process.

Manitoba's future depends on the wise use of our water resources. The development of a coherent strategy that integrates the various demands on our water with a co-operative approach to sustaining the resource, is critical to our well being and the maintenance of our natural ecosystems.

2. Discussion of Current Initiatives

Manitoba's Water Strategy identifies six interrelated policy areas. These policy areas were first introduced in *Manitoba's Water Policies* (1990) and are further defined and explained on page 27. This section includes a broad range of water management challenges and opportunities that Manitobans have encountered on the landscape. The six policy areas are:

- **water quality**
- **conservation**
- **use & allocation**
- **water supply**
- **flooding**
- **drainage**

Each of these policy areas recognizes the important need for water education. A number of specific actions have already been undertaken to address issues within each policy area. Manitoba Conservation and appropriate agencies will, in conjunction with public feedback, develop ways to address other outstanding issues. These strategies must also be able to address emerging challenges and developments in other jurisdictions, within the Hudson Bay Drainage Basin in particular. It is important that future actions take a comprehensive watershed-based approach in order to manage Manitoba's water in a sustainable manner. By implementing watershed based planning, we are better prepared to address current issues and anticipate water problems on the horizon.

We recognize and acknowledge that all six areas are interdependent. Actions taken or developments underway relating to one item may affect another. Recognizing these interdependencies is a critical aspect of sustainable watershed planning.

WATER QUALITY

The objective of Manitoba's Water Quality Policies is to protect and enhance our aquatic ecosystems by ensuring that surface water and ground water quality is adequate for all designated uses and ecosystem needs.

These policies protect our water, based on the *Manitoba Water Quality Standards, Objectives and Guidelines*, which consist of adopted, scientifically based, allowable levels. Maintaining quality of the resource shall be supported through programs and projects based on sustainability principles. Policies also address pollution through co-operative pollution control programs.

Water Quality

- Preservation of drinking water sources is essential.
- Some surface waters contain elevated nutrient levels.
- *Manitoba's Water Quality Standards, Objectives and Guidelines* need re sing.
- Abandoned mine sites in northern Manitoba can potentially have an impact on waterways.
- Unsealed, abandoned or improperly constructed wells can threaten water quality.
- Non-native species threaten Manitoba's indigenous ecosystems.
- Bridges and drains that have exceeded their design life can affect water quality.
- Winter roads and road salt can potentially damage lake and river ecosystems.
- Improperly located or inadequately functioning sewage disposal systems can lead to inferior water quality.
- Co-ordination of water quality issues between various levels of government can be improved.

Actions Today

- Created the new *Drinking Water Safety Act*, which establishes a new Office of Drinking Water to monitor water quality, prevent contamination, and identify risks and water treatment system improvements.
- Reinstated subsidized bacteriological testing of private and semi-public drinking water systems.
- Prepared and released updated final draft of *Manitoba Water Quality Standards, Objectives and Guidelines* - the country's most comprehensive framework for water protection and rehabilitation.
- Completing the *Nutrient Management Strategy* and scientific assessments of nutrient loads in surface waters.
- Convened Clean Environment Commission hearings to examine and make recommendations on the City of Winnipeg's wastewater treatment systems to ensure protection of the Red River, Lake Winnipeg, downstream communities and ecosystems.
- Implemented the Manitoba Ground Water Quality Initiative: assembling and interpreting existing data, and identifying and sampling approximately 1,000 wells on agricultural land across Manitoba.
- Completed a water quality protection plan with Manitoba, Ontario and two First Nations for Shoal Lake, Winnipeg's water source.
- Created the Manitoba Orphan Mine Site Rehabilitation Program and the Environmental Health Risk Assessment Program to address mine run-off.
- Provided support to seal off abandoned wells.

- Assisted livestock producers with riparian area management, including the development of off-stream watering systems through the Covering New Ground Program.
- Introduced the *Livestock Manure and Mortalities Management Regulation* under *The Environment Act* to ensure protection of surface and ground water sources.
- Undertook vigorous and active opposition to the proposed Devil's Lake diversion projects to prevent introduction of invasive species.
- Expanded the zebra mussel inspection programs at border crossings and at boat launch sites in Whiteshell Provincial Park.
- Provided millions of dollars to the Manitoba Water Services Board for the upgrading and expansion of municipal sewage and water systems.
- Minimized the use of road salt through development of a Road Salt Management Plan.
- Continued efforts to protect the Assiniboine River ecosystem by undertaking an in-stream flow needs assessment and a Water Quality Study with the co-operation of Brandon and Portage la Prairie.
- Continued development of a Water Quality Model for Lake Winnipeg to improve our understanding of the lake, enhancing our ability to put in place conservation measures.

Actions for Tomorrow

- Develop nutrient management zones based on the most up-to-date scientific information to help prevent excess nutrients from entering surface and ground waters.
- Enhance soil testing capabilities throughout agro-Manitoba.
- Address well construction and capping through legislative changes.
- Further protect water quality through integrated planning of watersheds, aquifers and basins.
- Develop comprehensive, co-ordinated programs, backed by legislation, to protect Manitoba's ecosystems from non-native species.
- Improve the *Livestock Manure and Mortalities Management Regulation.*
- Implement the *Nutrient Management Strategy.*
- Adopt tightened private sewage disposal standards and regulations.
- Develop programs to ensure minimal impact of past and present industrial activities.

CONSERVATION

The objective of Manitoba's water conservation policies is to conserve and manage the lakes, rivers, groundwater and wetlands of Manitoba so as to protect the ability of the environment to sustain life and provide environmental and economic benefits, along with other values to existing and future generations.

Our conservation policies are achieved through regulations, incentives, education and watershed-based integrated management of resources. Watershed-based integrated resource management would retain water and moderate flows for water supply, ground water recharge and wetland habitat, while reducing erosion and deposition.

Conservation

- Water sources and ecosystems need protection.
- The role of wetlands needs to be integrated into the water planning process.
- A wetland classification system is needed.
- Traditional ecological knowledge should be incorporated into conservation objectives.
- A practical guide and classification system for fish habitat is needed.

Actions Today

- Expanded the number of Conservation Districts from nine to 16.
- Introduced the Riparian Areas Tax Credit.
- Developed and began testing a wetlands classification system.
- Developed the Shellmouth Enhanced Water Retention Project.
- Passed legislation to ban bulk water removals.
- Announced funding for a new land and water management diploma program at Assiniboine Community College.
- Developing a federal/provincial agreement on the management of fish habitat.
- Developing water management plans across Manitoba for the Winkler Aquifer, Oak Lake Aquifer, Dauphin Lake and the Assiniboine Delta Aquifer, among others.
- Promoting water conservation programs with municipalities.

Actions for Tomorrow

- Incorporate the role of water in a properly functioning ecosystem, including enhancing and protecting riparian areas, when drafting new legislation and regulations.
- Develop resource planning to ensure habitat and resource conservation measures are included in policies.
- Research and develop better scientific tools to ensure ecological integrity is maintained.
- Continue to develop appropriate education, financial instruments and taxation incentives to encourage conservation objectives.
- Develop a watershed planning framework and guidelines that have conservation as a priority, consistent with the principles of sustainable development.
- Improve our development and maintenance of information on Manitoba's groundwater resources.
- Encourage the maintenance and establishment of on-farm water retention, while considering downstream users and effects on fish habitat.
- Consider developing a federal/provincial/local inventory of bridges, drains and docks, while identifying jurisdictional responsibilities and areas of co-operation.

USE & ALLOCATION

The objective of Manitoba's water use and allocation policies is to ensure the long term sustainability of the province's surface water and ground water for the benefit of all Manitobans.

These policies address responsibilities for the management of water resources, including legislation that addresses the provincial responsibility for water, and provide guidance on how that resource shall be managed. Priorities should be established on a basin and watershed basis. For example, prohibition of inter-basin transfers is clearly stated, while specifying that any intra-basin transfers shall consider the impacts on both the donor and receiving sub-basins.

Use & Allocation

- Demands on Manitoba's water resources are challenging the effectiveness of the current *Water Rights Act* on:
    - water allocation
    - user prioritization
    - ecosystem needs
    - quality and quantity requirements
    - intra-basin transfers
    - effects of land use activities in watersheds, aquifers and basins
    - large scale environmental impacts including climate change
- Aboriginal rights to water should be defined and respected.
- Non-consumptive uses of waterways for recreation and tourism development need to be considered an integral part of water management and planning.

Actions Today

- Passed legislation to ban bulk water removals.
- Implemented water allocation plans for several aquifers and rivers.
- Improved the water licensing process by putting in place new resources.
- Initiated the process of developing new water legislation.
- Developed an ecotourism strategy incorporating water issues.
- Establishing in-stream flow needs for the Assiniboine River to protect the ecosystem while meeting needs.
- Initiating discussions with Aboriginal organizations and communities on the implementation of the water strategy.

Actions for Tomorrow

- Recognize and include all uses and users, including Aboriginal people, into aquifer, basin and watershed based planning and management.
- Implement the mandatory certification process for operators of water and wastewater treatment plants.
- Develop new comprehensive legislation to ensure a flow of water sufficient to maintain healthy aquatic ecosystems and assure an effective and fair allocation among water users.

WATER SUPPLY

The objective of Manitoba's water supply policies is to develop and manage the province's water resources to ensure that water is available to meet priority needs and to support sustainable economic development and environmental quality.

These policies focus on managing water demands while considering the impacts of development on other uses and the environment. The fair distribution of the costs of development of water supply infrastructure among beneficiaries, as well as the protection of pristine and potable water supplies are issues addressed by this policy area. There is also a need to ensure that water resources are available during extreme fluctuations when base supplies are reduced or under stress.

Water Supply

- The knowledge and management of ground water sources is incomplete.
- Comprehensive hydrological and ground water supply data is incomplete.
- There are increasing and competing demands on existing water supplies.
- Our understanding of the long-term impacts of development, including upstream development, on water supply, needs to improve.
- Methods to finance and distribute costs of water development and management among beneficiaries need to be explored.
- Our understanding of the effects of climate change on our water supply needs to improve.
- Water supply infrastructure renewal should be accelerated.

Actions Today

- Continuing water resource planning with local input.
- Recording users and uses of ground water sources in areas of heavy use.
- Working with other jurisdictions to protect important water supplies such as Shoal Lake.
- Working with other levels of government, including First Nations to upgrade and maintain aging water supply infrastructure in the province.
- Supported development of off-farm, seasonal surplus, water storage and distribution systems to support irrigated crop production.
- Negotiated federal-provincial agreement for research into climate change.
- Conducted meetings with the public to promote and raise awareness about climate change, and solicit funding proposals for research.

Actions for Tomorrow

- Consider fair and equitable licensing fees and use-based charges.
- Develop a plan for water storage options, including maintenance of existing facilities and wetland retention, as part of broad-based water planning in Manitoba.
- Determine possible effects of climate change on water supplies and study options to deal with and adapt to these potential changes.
- Consider demand management techniques and principles for managing water supplies.

- Record users and uses of ground water sources in critical areas where the ground water is under stress and where additional data is required to address the sustainable limits.
- Draft new water legislation to reflect *Manitoba's Water Strategy* and incorporate emerging issues.
- Provide programming to encourage and support off-farm irrigation infrastructure.
- Incorporate water supply issues into watershed based planning.
- Co-ordinate efforts with other jurisdictions to ensure the sustainability of our water supply.
- Help co-ordinate efforts among First Nation, municipal, provincial and federal governments, and other interested parties to ensure the development, reconstruction, repair and maintenance of water supply infrastructure throughout the province.
- Enhance the water control capabilities of the Shellmouth Dam for the benefit of downstream communities along the Assiniboine River.

FLOODING

The objective of Manitoba's flooding policies is to alleviate human suffering and minimize the economic costs of damages caused by flooding.

These policies primarily seek to reduce damages and human suffering caused by flooding, through the control of development in flood prone areas and the exploration of economically viable measures to reduce flood damages. Practical means to decrease flood vulnerability need to be developed and implemented throughout the province, recognizing the differences within and between various regions.

Flooding

- Floodplain mapping for the entire province is incomplete.
- Human development in unprotected, flood prone areas increases flood damage costs.
- Flooding of farmland and infrastructure throughout Manitoba causes social and economic hardship.
- Flash flooding and erosion along the Manitoba escarpment causes significant damage to property.
- The City of Winnipeg and the Red River Basin remain vulnerable to a flood larger than that of 1997, causing great social and economic hardship.
- Manitoba basins remain vulnerable to flooding.
- Responsibility and authority for flood preparedness, compensation and mitigation can be unclear.
- The level of flood protection across Manitoba is inconsistent.
- Localized flooding continues to occur, caused by land use and land drainage changes in the watershed.
- Hydroelectric projects have caused flooding in the past.

Actions Today

- Increased the level of flood protection in the Red River Basin through the rural flood-proofing program by building community ring dikes, and protecting homes, businesses and communities.
- Increased the level of flood protection for the City of Winnipeg, including development of the Red River Floodway expansion option and allocation of $160 million from the provincial and federal governments for the first phase, as well as investments from the City of Winnipeg, towards the project.
- Developed and implemented land-use planning strategies to help ensure development does not occur in areas of high flood risk.
- Announced expanded Red River Floodway compensation legislation.
- Improved and expanded real-time hydrological monitoring and forecasting, with timely provision of such information to the municipalities and other users.
- Constructed roads and transportation corridors to minimize potential flooding impact to lands and residences.
- Started a process to use low-impact hydroelectric production, which can reduce or eleminate upstream flooding.

Actions for Tomorrow

- Further increase the level of flood protection for the City of Winnipeg, including construction of the expansion of the existing Red River Floodway.
- Review proposed projects in the Red River Basin and other flood prone areas, for the potential to affect flow patterns and cause flood damages.
- Further refine land use planning strategies in partnership with local governments to ensure appropriate development occurs in areas of high flood risk.
- Locate land transportation routes, where feasible, outside of flood zones.
- Consider other non-structural methods, such as water retention and land use management, in addressing flood control.
- Consider watershed retention projects that can provide tourism and recreation benefits while serving the purposes of flood mitigation.
- Prepare watershed and basin plans that will address flooding issues.
- Implement community protection measures where they are economically feasible.
- Increase the level of flood protection in all flood prone areas.
- Explore means of renewing dredging programs for the Red River and re-engage the federal government as the appropriate agency to undertake the program.

DRAINAGE

The objective of Manitoba's water drainage policies is to enhance the economic viability of Manitoba's agricultural community through the provision of comprehensively planned drainage infrastructure.

Drainage is defined as that infrastructure which is designed to remove excess rainfall during the growing season, based on the productive capability of the soil and on technical, economic and environmental factors. The policies present maintenance of drains as a higher priority than reconstruction, while reconstruction is a higher priority than new construction. Drainage shall be undertaken on a watershed basis, endeavouring to protect wetland areas, fish habitat and downstream water quality. Drainage will also consider water retention, control and timing of run-off.

Drainage

- Co-ordination among landowners, local governing bodies, First Nations, conservation districts, watershed management associations and the Manitoba government needs to improve.
- Drainage enforcement, infrastructure maintenance and drain reconstruction are issues of importance.
- The provincial drainage system can be more effective.
- Methods need to be found to improve the level of consideration of drainage, fish habitat and water quality in the planning, licensing, construction and maintenance of drainage works.

Actions Today

- Significantly increased funding for the provincial drainage network by allocating funds for the water capital and maintenance budgets.
- Implemented a drainage pilot project with the Whitemud Conservation District to partner in drainage licensing and program administration, with a goal of expanding the project to other conservation districts.
- Encouraging the federal Department of Fisheries and Oceans to promote reasonable drainage guidelines that improve drainage and protect fish habitat.
- Promoting and expanding the number of conservation districts within Manitoba.

Actions for Tomorrow

- Develop and implement a clear, co-ordinated approach among local organizations, all levels of government, First Nations and jurisdictions outside of Manitoba to properly assess and manage drainage issues.
- Develop appropriate standards for drainage that incorporates agricultural needs, the protection of fish and wildlife habitat and downstream water quality.
- Recognize regional variations in drainage issues and requirements.
- Develop drainage plans locally, within the context of the watershed, which consider watershed rehabilitation, potential impacts, wetland conservation and fish habitat.
- Incorporate drainage as part of watershed planning in new water legislation proposals.
- Seek methods to streamline the approval process and improve enforcement of drainage requirements.
- Improve drainage maintenance and address the deteriorating drainage infrastructure.

3. Implementation Framework for Manitoba's Water Strategy

An effective and transparent method of implementing *Manitoba's Water Strategy* is crucial to ensuring long-term conservation of our water resources. The development of this implementation framework will be a participatory process that considers both present and future demands on our water, and ensures the protection of ecosystems.

Manitoba's Water Strategy is comprised of actions that have been undertaken or proposed, to address specific issues in the six different policy areas. Implementation has begun and will continue to be a priority. A three-part implementation framework has been created to integrate and coordinate our strategy. The three elements of this framework are:

I. **the development of an integrated water planning and management system**
II. **the review and consolidation of water legislation**
III. **the development of the mechanisms for financing water management and planning**

Based on the input provided from users and user groups, the watershed-planning processes will tackle specific issues and prioritize water needs and allocations on a local level. These will then be compared to other management plans, embodying the framework of ecosystem-based planning outlined in the COSDI report.

Watershed plans will be brought together so priorities for the entire basin can be established. Basin planning will be done within the context of Manitoba's vision and mission. Partnerships and agreements are imperative to guaranteeing the fulfillment of these plans. It is also imperative to the success of watershed planning that environmental stewardship, our quality of life and the viability of our economy be included. This will be done with legislation to ensure the future of our water resources remain an important part of Manitoba's environment and economy.

To complete this exhaustive task, the public will continue to be consulted on a variety of water management issues. The information gathered will be used to determine and develop the future course of water management in Manitoba. The following is a brief discussion of the three elements of the implementation framework.

I. The Development of an Integrated Water Planning and Management System

Integrated water planning and management is a public policy priority for the government of Manitoba. The framework for water management planning is intended to provide general guidance by outlining the components and steps used in water management planning. While the major components of all plans must be similar, detailed processes for preparation of each of these plans will vary.

Planning at basin, aquifer, and watershed levels has occurred to varying degrees in the province for more than a decade. The components of the framework reflect successes from past experience and new requirements based on our increased understanding of the complexity of the environment and the challenges of the future.

Planning and managing resources and activities on the basis of watersheds, basins and aquifers is supported by Manitobans as voiced through public consultation processes. The government, through its commitment to sustainable development, has made it clear that responsibility for water management is shared by all Manitobans. At the same time, the provincial government will provide a lead role to guide water management by working to create watershed districts across the province. We can work toward this goal by building on the example set by existing conservation districts, groups driven by local priorities that partner with a variety of local stakeholders to accomplish innovative water management programs. Municipal governments, local governing bodies, First Nations, agricultural producers, industry and members of the general public will need to play a role in water management planning activities.

The government will support and facilitate public involvement and ensure that appropriate planning activities are conducted.

Water can be managed on a watershed basis to address inefficiencies and environmental, economic, and social impacts. Municipalities and local governing bodies require a process to co-ordinate their efforts in the development of watershed-based plans. Manitoba would benefit from co-operative, watershed based planning with other provincial jurisdictions to ensure actions are complementary and co-ordinated.

The *Manitoba Water Strategy* will support development of a watershed-planning framework that provides all Manitobans with an opportunity to participate. Public participation will ensure our strategy is effective, as the consideration of community interests will be maintained throughout the planning process. The use of local knowledge and traditional ecological knowledge is a critical element in the understanding of water management and adaptations at a community level. This includes predictions for seasonal and annual fluctuations of the resource. Watershed management plans must be adequately maintained and enforced to be effective.

Watershed plans must also be flexible to develop an integrated approach between provincial, basin, watershed, conservation district, aquifer, planning district, municipal, First Nation and large scale land and water use plans. Obtaining the participation of Manitoba Hydro, the resources sector, agricultural producers, industry and others will also be essential.

II. The Review and Consolidation of Water Legislation

One of the key components of *Manitoba's Water Strategy* is the review and modification of legislation related to water. This work has already begun with new legislation to protect drinking water through the *Drinking Water Safety Act* and another law banning bulk water removals. It also includes the development of legislation to compensate those who may be affected by the operation of the expanded Red River Floodway.

The i nt is to develop comprehensive water legislation that will incorporate most existing water legislation into a single act. This review and development of legislation is based on recent public input, and will be subject to further, more extensive, public consultation. *The Water Rights Act, The Water Resources Administration Act, The Ground Water and Water Well Act, The Diking Authority Act, The Water Commission Act, The Water Supply Commission Act* and *The Water Resources Conservation and Protection Act* will be reviewed for inclusion in the consolidation. Further review will determine when other water legislation should also be consolidated. The legislative changes will work within the watershed planning components to aid, regulate, and strengthen water management in Manitoba.

We will work towards providing secure water supplies for current users, while ensuring water is available for other potential users in the future. Watershed, aquifer and basin planning should be recognized in legislation. The provision for, and determination of requirements to sustain life within the ecosystem is not recognized in legislation. This must be considered a paramount objective to maintain aquatic health.

The Manitoba government has made progress in addressing the admin. ative backlog of water license applications and will continue to do so simultaneously with the watershed planning process. This legislative renewal process will take into account the requirements of the federal *Fisheries Act* to ensure compatibility a more integrated and seamless approach for clients.

The Manitoba government recognizes that all stakeholders within the watershed are important and each can play an important role in the development of legislation that puts us on solid ground for the future.

III. The Development of the Mechanisms for Financing Water Management and Planning

The benefits we realize from our relationship with water can at times be overshadowed by the destructive nature of flooding. In 1999, excessive rainfall and runoff in portions of southwestern Manitoba posed significant costs to agricultural and rural communities. The loss of income for those Manitobans had effects in many other areas of the economy as well. Physical and emotional trauma takes a toll on those who experience flooding.

According to the International Joint Commission (IJC), the economic damage to Canada and the United States from the 1997 flood in the Red River Basin approached $7 billion, and flood recovery and mitigation costs continue to grow. Additionally, the human suffering and social and economic impact on individuals and their communities has been substantial. Through perseverance and determination Manitobans met the challenges of these and other flood events. Now is the time to take the necessary steps to protect ourselves from future floods through preventative action and co-operation.

The Land Drainage Review, the *Water Use and Allocation Review,* the *Livestock Review,* the *Drinking Water Review*, the IJC report, and *The Water Commission Review* of the 1997 flood have all brought to light the importance of effective water management. This includes maintenance of provincial and other works, water supply and flood control infrastructure development, water use, flow and quality monitoring, data collection and analysis, policies and regulations on development in flood prone areas and enforcement of new water legislation.

Proper watershed planning and management in Manitoba will require the commitment of financial and other resources from various source partnerships. Funding options for the continued maintenance and reconstruction of the provincial waterway system and watershed restoration projects should be explored to reflect an equitable sharing of benefits and costs among users. This planning should consider all uses of water, drainage, effluent discharge and waterpower.

Significant concerns have been expressed about overall funding and the level of contributions from among the partners. Throughout the 1990s, funding cuts at both federal and provincial levels affected the ability of all stakeholders to maintain and manage water resources properly. While funding has improved, there is clearly a need for long-term, sustainable funding for the future. Stakeholders have expressed a willingness to address the situation. Therefore, a financial strategy will involve all stakeholders in a co-operative discussion working towards new funding arrangements and partnerships. Various committees comprised of all levels of government and other key groups and organizations will be formed. Their task will be to seek consensus on new funding arrangements that are fair and equitable.

4. Summary

Manitobans currently face a number of complex and challenging water policy areas. The Manitoba government is taking action due to the necessity for finding immediate solutions. We also must manage with an eye towards sustainability and a comprehensive vision. The Manitoba government is working towards a more holistic and integrated water strategy to guide our actions into the future. To manage sustainably, we must become true stewards of the resource by considering all of the important components within a watershed.

The goal of *Manitoba's Water Strategy* is to develop watershed-based planning across the entire province to ensure that future management of specific water issues is done carefully. A sustainable approach will ensure that all our needs are met, while maintaining ecosystem protection. Sustainability is the key to successful water management.

The three elements of the implementation framework outlined in this document are crucial to *Manitoba's Water Strategy* process. This is the means to co-ordinate diverse actions into a broad, coherent and integrated strategy for the future. The development of this framework will be a participatory process that considers present and future anticipated demands on our water, within a sustainable vision.

Water management in Manitoba is a big job. All Manitobans rely on water for their own personal use, but many must also rely on water, directly or indirectly, to provide an income for themselves and their families. Water is critical to ecosystem viability and this must be maintained. For *Manitoba's Water Strategy* to be successful we must develop effective, long-lasting partnerships among all Manitobans to secure safe, clean water supplies for our future.

APPENDIX

Manitoba's Watersheds

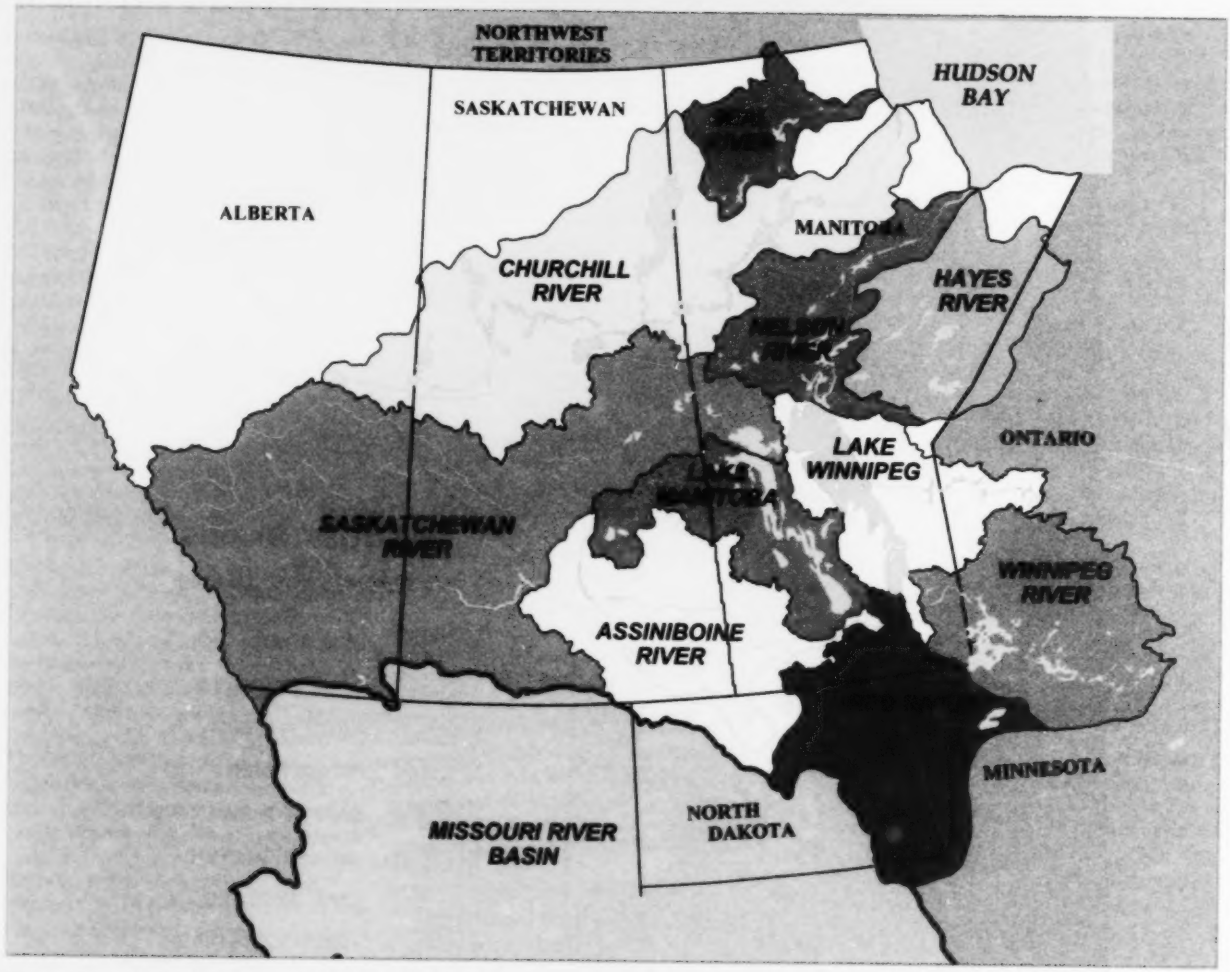
Within Manitoba there are 10 sub-basins (see map 1), which contain smaller drainage areas commonly known as watersheds (see map 2). Waters within a watershed flow towards a common river basin.

Resource management can be planned, integrated and monitored at the watershed level, aiding both users and decision-makers. How we manage both land and surface water influences the quantity and quality of our ground water sources. Consequently, our water sources are influenced by almost everything we do within the watershed, either directly or indirectly.

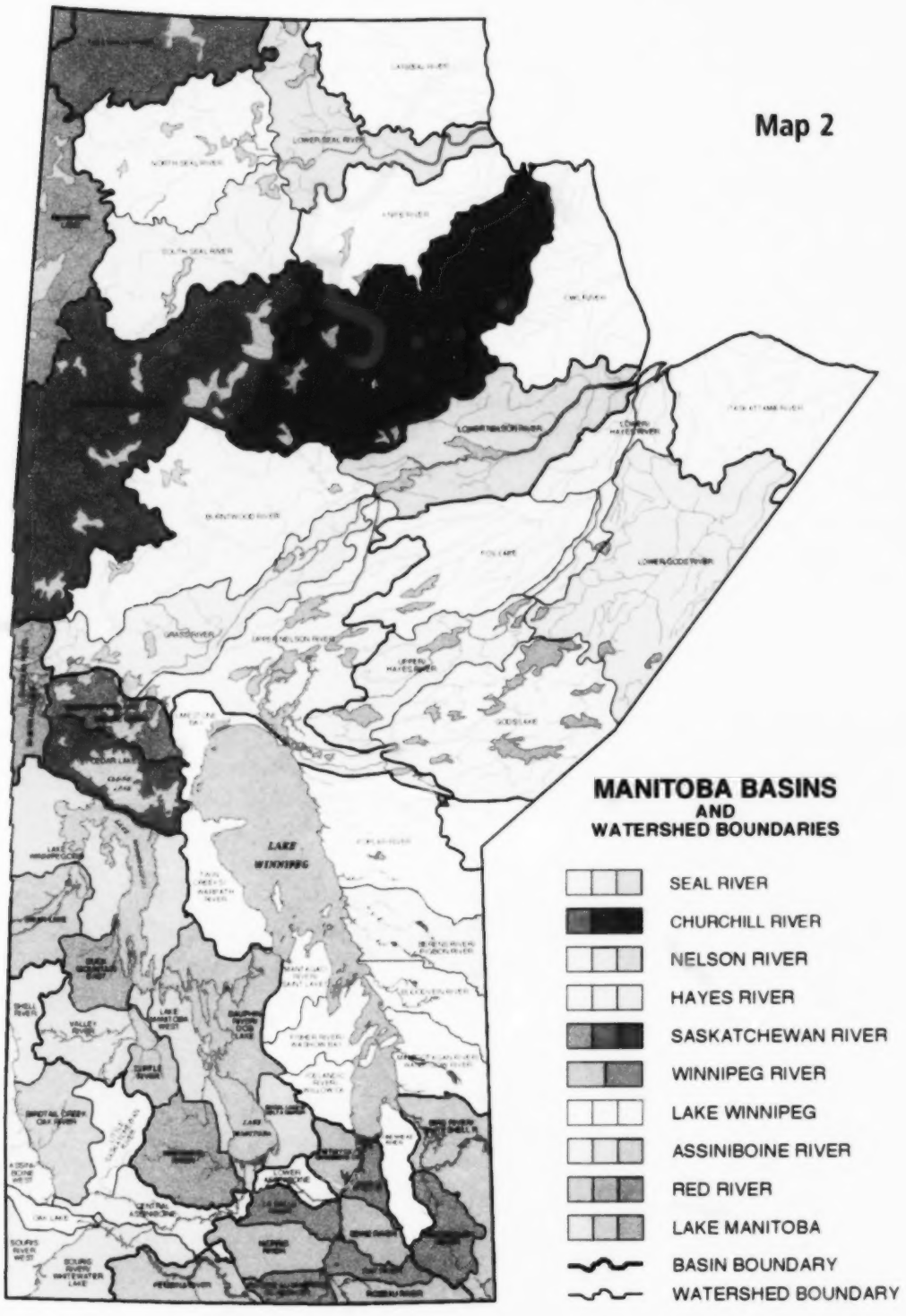
At the watershed level, it is easily seen that water sustains life, from micro-organisms to the largest mammal, from fungi to trees. Water is essential in sustaining ecosystems. Manitoba waters etch the landscape, support life and help shape our society. Water will always be essential to our present existence and our future.

The significance of water to Manitoba also lies in its power to cause hardship and devastation. Natural and extreme fluctuations in the quantity of the water season to season and year to year, can result in severe droughts or massive flooding, localized or widespread. Water not only has the power to sustain, but also to destroy.

Three-quarters of Manitobans live in areas of the province known for their history of extensive flooding. Conversely, Manitoba is also part of the prairie region that experiences extremes in droughts, causing hardships for people and the economy.



Map 1 - Sub-basins within Drainage Area Flowing through Manitoba


Map 2
MANITOBA BASINS
AND
WATERSHED BOUNDARIES
SEAL RIVER
CHURCHILL RIVER
NELSON RIVER
HAYES RIVER
SASKATCHEWAN RIVER
WINNIPEG RIVER
LAKE WINNIPEG
ASSINIBOINE RIVER
RED RIVER
LAKE MANITOBA
BASIN BOUNDARY
WATERSHED BOUNDARY
LAKE WINNIPEG

1. Water quality

To protect and enhance our aquatic ecosystems by ensuring that surfacewater and ground water quality is adequate for all designated uses and ecosystem needs.

Policy 1.1 - The "Manitoba Surface Water Quality Objectives" shall be adopted and implemented to protect water uses for Manitobans.
Policy 1.2 - Water quality shall be enhanced through the management of water resources.
Policy 1.3 - Water quality enhancement programs shall be designed to restore environmental quality, as well as deliver economic, cultural, and heritage benefits to Manitobans.
Policy 1.4 - The quality of wastewater discharges shall be improved and non-point sources of pollution decreased to achieve water quality objectives.
Policy 1.5 - Pollution control programs shall be designed in consultation with affected user groups and, where possible, implemented in such a manner as to cause minimum disruption to established land and water uses.

2. Conservation

To conserve and manage the lakes, rivers, and wetlands of Manitoba so as to protect the ability of the environment to sustain life and provide environmental, economic, and aesthetic benefits to existing and future generations.

Policy 2.1 - River, lake, and shoreland habitat and the general environmental, subsistence, and economic values of rivers, lakes, and wetlands shall, where possible, be conserved.
Policy 2.2 - Soil conservation, wetland retention, and the application of appropriate land use practices shall be promoted primarily by the provision of incentives, but with regulation where required, not only as essential elements of water conservation and protection, but also as key measures to reduce siltation impacts, downstream flooding, and non-point source pollution.
Policy 2.3 - Those waterways whose cultural, natural, and/or recreational values are of provincial or national significance shall be given special consideration.
Policy 2.4 - Water retention, and control and timing of runoff, shall be promoted as part of watershed management.

3. Use and allocation

To ensure the long term sustainability of the province's surface water and ground water for the benefit of all Manitobans.

Policy 3.1 - Economic well being and sustainability shall be the goal in the allocation and utilization of Manitoba's water resources for consumptive and instream uses.
Policy 3.2 - Water management priorities shall be determined through a basin planning process that takes into account the protection of potable water supplies, environmental integrity, existing commitments, and economic requirements.
Policy 3.3 - Ground water development and utilization shall be managed so that the long term sustainability of aquifers is achieved and existing uses are not negatively impacted.
Policy 3.4 - Surface water shall be managed to ensure sustainability of supplies.
Policy 3.5 - Transfer of untreated water across the Continental Divide (to or from the Hudson Bay drainage area) shall be opposed. Transfers within the Hudson Bay drainage area shall be minimized and only considered after a complete assessment of the environmental, social, and economic impacts on the donor and receiving basins.

4. Water supply

To develop and manage the province's water resources to ensure that water is available to meet priority needs and to support sustainable economic development and environmental quality.

Policy 4.1 - Demand management programs shall be implemented to conserve water and reduce the requirements for new water supply infrastructure.
Policy 4.2 - Irrigation, industrial, and other development proposals involving direct or indirect water use shall consider impacts on existing and potential water uses as well as impacts on the environment.
Policy 4.3 - The cost of developing, operating, and maintaining the water resource infrastructure shall be apportioned among the beneficiaries in accordance with their share of the benefits.
Policy 4.4 - Pristine and potable water sources shall be afforded special protection.

5. Flooding

To alleviate human suffering and minimize the economic costs of damages caused by flooding.

Policy 5.1 - Development on land subject to flooding or other water related hazards shall occur only under planning guidelines which prevent human suffering and property damage, limit public costs and liabilities, and address environmental impacts.
Policy 5.2 - Economically viable measures to alleviate personal and property damage to existing development in flood prone areas shall be fostered.
Policy 5.3 - The negative impacts of changes to water level and flow regimes caused by hydro-electric development projects shall be mitigated to the extent possible.

6. Drainage

To enhance the economic viability of Manitoba's agricultural community through the provision of a comprehensively planned drainage infrastructure.

Policy 6.1 - Drainage works shall be designed to remove excess rainfall from cropland during the growing season.
Policy 6.2 - The standard of drainage shall be based on the production capability of the soil and on technical, economic, and environmental criteria, recognizing watershed, community, and farm impacts.
Policy 6.3 - Maintenance of existing drainage systems shall be of higher priority than reconstruction.
Policy 6.4 - Reconstruction of drainage systems to improve productivity and to reduce erosion and deposition shall be given a higher priority than expansion into new agricultural lands.
Policy 6.5 - Drainage projects shall be planned and executed so that projects in one area do not adversely affect another area.
Policy 6.6 - The protection of wetlands shall be a consideration in planning and developing drainage projects.
Policy 6.7 - Water retention, and control and timing of runoff, shall be promoted as part of watershed management.

7. Education

To enhance the awareness and knowledge of Manitoba's water resources.

Policy 7.1 - Schools: -Students of all ages shall be provided with information on the significance of Manitoba's water resources.
Policy 7.2 - General Public: Education on water matters shall be achieved in part through the sharing of information, demonstration projects, and the involvement of the general public.
Policy 7.3 - Forum for Scientific and Technical Input: A forum shall be developed to obtain input from the scientific, technical, and professional communities on water management issues.
Policy 7.4 - Community Leaders and Elected Representatives: Community leaders and elected representatives shall be provided with the information they need to make sound water management decisions.

Notes

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